

IN THE CLAIMS:

1. (Currently Amended) A back-off tool for use in a tubular member disposed inside a wellbore, comprising:

a housing;

at least one sonic wave generator mounted within the housing, wherein the at least one sonic wave generator comprises ~~a solid state device~~ at least one of a piezoelectric ceramic and a stack of piezoelectric plates; and

a controller coupled to the sonic wave generator, wherein the controller is configured to vary at least one of an amplitude[[,]] and frequency ~~and resonance of the at least one sonic wave~~ waves generated by the sonic wave generator.

2. (Canceled)

3. (Cancelled)

4. (Cancelled)

5. (Currently Amended) An apparatus for loosening a threaded connection joining an upper portion and a lower portion of a tubular member, comprising:

a back-off tool having at least one sonic wave generator ~~having at least a piezoelectric ceramic~~;

a wireline connected to the back-off tool, wherein the wireline is configured to lower the back-off tool through the tubular member;

a power supply for delivering a signal to the at least one sonic wave generator, wherein the at least one sonic wave generator is configured to generate at least one sonic wave; and

a controller coupled to the at least one sonic wave generator, wherein the controller is configured to vary ~~at least one of an amplitude[[,]] and~~ frequency ~~and resonance of the at least one sonic wave~~ waves generated by the sonic wave generator.

6. (Cancelled)

7. (Original) The apparatus of claim 5, wherein the sonic waves are configured to loosen the threaded connection.

8. (Previously Presented) The apparatus of claim 5, wherein the at least one sonic wave generator comprises two or more sonic wave generators positioned on either side of the threaded connection.

9. (Previously Presented) The apparatus of claim 8, wherein the two or more sonic wave generators are positioned such that a combination of the sonic waves from the two or more sonic wave generators is substantially greater than the sonic waves from each one of the two or more sonic wave generators.

10. (Previously Presented) The apparatus of claim 8, wherein each one of the two or more sonic wave generators is configured to be activated simultaneously or at predefined times.

11.—15. (Canceled)

16. (Currently Amended) A method for loosening a threaded connection on a tubular member, comprising:

lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection, wherein the back-off tool comprises two or more sonic wave generators, each having at least one of a piezoelectric ceramic and a stack of piezoelectric plates; and

activating the two or more sonic wave generators simultaneously to cause the sonic wave generator to generate sonic waves.

17. (Original) The method of claim 16, wherein the sonic waves are configured to loosen the threaded connection.

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Original) The method of claim 16, further comprising applying a reverse torque to the tubular member.

22. (Original) The method of claim 16, further comprising setting the tubular member to a neutral weight position at the threaded connection above a sticking condition.

23. (Original) The method of claim 16, wherein the back-off tool is activated while moving a neutral weight position up and down the tubular member.

24. (Currently Amended) A method for loosening a threaded connection on a tubular member, comprising:

lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection, wherein the back-off tool comprises a sonic wave generator having at least one of a piezoelectric ceramic and a stack of piezoelectric plates; and

activating the sonic wave generator to generate sonic waves while reciprocating the tubular member.

25. (Currently Amended) A method for loosening a threaded connection on a tubular member, comprising:

lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection, wherein the back-off tool comprises a sonic wave generator having at least one of a piezoelectric ceramic and a stack of piezoelectric plates; and

activating the back-off tool to cause the sonic wave generator to generate sonic waves, while substantially moving the back-off tool up and down the tubular member.

26. (Currently Amended) A method for backing-off an upper portion of a tubular member joined to a lower portion of the tubular member by a threaded connection in a wellbore, comprising:

applying a reverse torque to the upper portion of the tubular member;

lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection joining, wherein the back-off tool comprises a sonic wave generator having at least one of a piezoelectric ceramic and a stack of piezoelectric plates; and

generating sonic waves through the back-off tool to loosen the threaded connection, while moving a neutral weight position along the tubular member.

27. (Cancelled)

28. (Original) The method of claim 26, further comprising activating the back-off tool to generate the sonic waves.

29. (Currently Amended) The method of claim 26, further comprising setting the tubular member to ~~[[a]]~~ the neutral weight position at the threaded connection above a sticking condition.

30. (Cancelled)

31. (Currently Amended) A method for backing-off an upper portion of a tubular member joined to a lower portion of the tubular member by a threaded connection in a wellbore, comprising:

applying a reverse torque to the upper portion of the tubular member;

lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection joining, wherein the back-off tool comprises a sonic wave generator having at least one of a piezoelectric ceramic and a stack of piezoelectric plates; and

generating sonic waves through the back-off tool to loosen the threaded connection while substantially moving the back-off tool up and down the tubular member.

32. (Original) The method of claim 26, further comprising varying one or more frequencies of the sonic waves.

33. (Original) The method of claim 26, further comprising retrieving the upper portion from the wellbore.

34. (Canceled)

35. (Currently Amended) The back-off tool of claim 1, wherein the selected frequency amplitude is selectively variable.

36. (Currently Amended) The back-off tool of claim [[1]] 35, wherein the sonic wave generator is configured to generate sonic waves at a constant frequency.

37. (Currently Amended) The back-off tool of claim [[1]] 35, wherein the sonic wave generator is configured to generate sonic waves at a substantially singular frequency.

38. (Currently Amended) The back-off tool of claim [[1]] 35, wherein the sonic wave generator is configured to generate sonic waves at a variable frequency.

39. (Cancelled)

40. (Cancelled)

41. (Currently Amended) A method for loosening a threaded connection on a tubular member, comprising:

lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection, wherein the back-off tool comprises a sonic wave generator having at least one of a piezoelectric ceramic and a stack of piezoelectric plates; and

activating the back-off tool to cause the sonic wave generator to generate sonic waves, while moving a neutral weight position up and down the tubular member.

42. (Previously Presented) The back-off tool of claim 1, wherein the at least one sonic wave generator comprises two or more sonic wave generators positioned at two or more locations.

43. (New) A method for loosening a threaded connection on a tubular member, comprising:

lowering a back-off tool through the tubular member to a position substantially proximate the threaded connection, the back-off tool comprising a sonic wave generator capable of generating a sonic wave at a selectively variable amplitude and frequency; and

activating the sonic wave generator to generate sonic waves.